

Patent  
Avago Technologies Docket No.: 70030419-1

**REMARKS**

This is a full and timely response to the non-final Office Action mailed by the U.S. Patent and Trademark Office on December 15, 2005. Claims 4 and 8-16 remain pending in the present application. Claim 4 is amended. Claims 8-16 are allowed. No new matter is introduced. In view of the foregoing amendment and following remarks, reconsideration and allowance of the present application and claims are respectfully requested.

**Allowable Subject Matter**

Applicants wish to thank the Examiner for the indicated allowability of claims 8-16.

**Rejection Under 35 U.S.C. § 103**

Claim 4 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,610,598 to Chen (hereafter *Chen*) in view of U.S. Patent No. 5,327,443 to Tanaka *et al.* (hereafter *Tanaka*).

For a claim to be properly rejected under 35 U.S.C. § 103, “[t]he PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.” *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988) (Citations omitted). Further, “[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.” *In re Fritch*, 972 F.2d 1260, 1266, 23 U.S.P.Q.2d 1780 (Fed Cir. 1992).

The Office Action states that

[r]egarding claim 4, Chen discloses surface-mounted devices of light emitting diodes with small lens where in Figs. 6 and 7 an optical source comprising an optical emitter 3, an encapsulant 5 covering the optical emitter, a diffractive element on top (6A in Fig. 7) integrated into the encapsulant where the encapsulant passes light from the optical emitter to the diffractive element and where the optical emitter is positioned on substrate 1. Chen fails to specifically disclose the required heatsink element. However, Tanaka et al. disclose a package type-semiconductor laser device where the optical emitter is positioned on metallic heatsink 11.

It would have been obvious to one of having ordinary skill in the art at

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the time the invention was made to include the required conductive heatsink in Chen as taught by Tanaka et al. in order to have a light emitting device with better reliability.

*Chen* discloses small lenses arranged in an array. According to *Chen*, “[t]his structure is a surface composed of several small lens that collect most of the light inside the component and then emit. This is because the convex surface of the small lens enlarges the critical angle, which means enlarging the angle inside the component that allows it to emit the light effectively, and then increase the brightness of the entire SMD LED.” See *Chen*, col. 3, lines 19-26.

*Tanaka* discloses a package-type semiconductor device that includes a metal heatsink plate, a semiconductor laser chip carried by the heat sink plate and a cap mounted on the heat sink plate to enclose the laser chip. See *Tanaka*, Abstract.

Applicants respectfully submit that the proposed combination fails to teach every element in Applicants’ independent claim 4. Specifically, the proposed combination fails to disclose, teach or suggest at least “a diffractive element integrated into the encapsulant, wherein the encapsulant intercepts and passes light from the optical emitter to the diffractive element wherein the diffractive element diffracts the light to form a predesignated optical radiation pattern and wherein the optical emitter is positioned at a conductive mounting site of a conductive heat sink and the optical source is a surface mount device,” as recited in independent claim 4.

Applicants respectfully disagree with the statement in the Office Action that

[r]egarding claim 4, *Chen* discloses surface-mounted devices of light emitting diodes with small lens where in Figs. 6 and 7.... and where the optical emitter is positioned on substrate 1.

Applicants respectfully submit that nowhere does *Chen* disclose, teach or suggest an optical emitter positioned on the substrate 1. Instead, *Chen*, in FIG. 6, shows that the optical emitter 3 is located on element 2, which is not described as a substrate. None of the elements in FIG. 6 of *Chen* are described in *Chen*’s specification. The examiner is assuming that element 1 in *Chen*’s FIG. 6 is a substrate and that element 3 in *Chen*’s FIG. 6 is an emitter. If the Examiner’s assumption is correct, then *Chen* shows that the light emitter 3 is located on element 2, which intervenes between elements 1 and 3. Accordingly, Applicants respectfully

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submit that the proposed combination fails to disclose, teach or suggest each element in Applicants' claim 4.

Applicants also respectfully disagree with the statement in the Office Action that [i]t would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required conductive heatsink in *Chen* as taught by *Tanaka et al.* in order to have a light emitting device with better reliability.

Applicants respectfully submit that the invention attempts to optimize the optical radiation pattern of the light emitted from an optical source, and not to "have a light emitting device with better reliability" as suggested by the Examiner.

No Motivation to Combine *Chen* with *Tanaka*

Applicants respectfully submit that there is no motivation to combine *Chen* with *Tanaka* to arrive at the present invention. Applicants respectfully submit that there is nothing in *Chen* and *Tanaka* that would motivate one having ordinary skill in the art to combine these references to arrive at Applicants' claimed invention. Further, the proposed combination fails to provide either a reasonable expectation of success of combining the references to achieve the invention, or show any relevance to the problem solved by Applicants' invention. Further, the Office Action fails to articulate a clear motivation to make the proposed combination.

Specifically, Applicants respectfully submit that the Office Action fails to establish a *prima facie* case of obviousness because the Office Action has not pointed out the specific teachings in *Chen* and *Tanaka* that would motivate one having ordinary skill in the art to combine the references to arrive at Applicants' invention. Indeed, neither *Chen* nor *Tanaka* disclose, teach or suggest a diffractive element integrated into the encapsulant, wherein the encapsulant intercepts and passes light from the optical emitter to the diffractive element wherein the diffractive element diffracts the light to form a predesignated optical radiation pattern and wherein the optical emitter is positioned at a conductive mounting site of a conductive heat sink and the optical source is a surface mount device.

Further, Applicants respectfully disagree with the conclusory statement in the Office Action that

[i]t would have been obvious to one of having ordinary skill in the art at the

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time the invention was made to include the required conductive heatsink in Chen as taught by Tanaka et al. in order to have a light emitting device with better reliability.

Applicants respectfully submit that one having ordinary skill in the art would not be led toward the claimed structure because neither *Chen* nor *Tanaka* suggests the structure recited in claim 4.

For at least the reasons stated above, Applicants respectfully submit that the proposed combination is improper, and further, that the proposed combination fails to disclose, teach or suggest the all elements of the invention

For at least the reasons stated above, Applicants respectfully submit that the proposed combination fails to disclose, teach or suggest each element in independent claim 4.

### CONCLUSION

Should the Examiner have any comment regarding the Applicants' response or believe that a teleconference would expedite prosecution of the pending claims, Applicants request that the Examiner telephone Applicants' undersigned attorney.

Respectfully submitted,

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